NCP visibility per visibility Time-Frequency maps

Simulated visibilities from sources near NCP

First two figures

Visibilities computed from all sources > 5 Jy and above δ>60 deg (NO CasA) and sources > 1 Jy and δ>80 and >0.5 Jy and δ>85
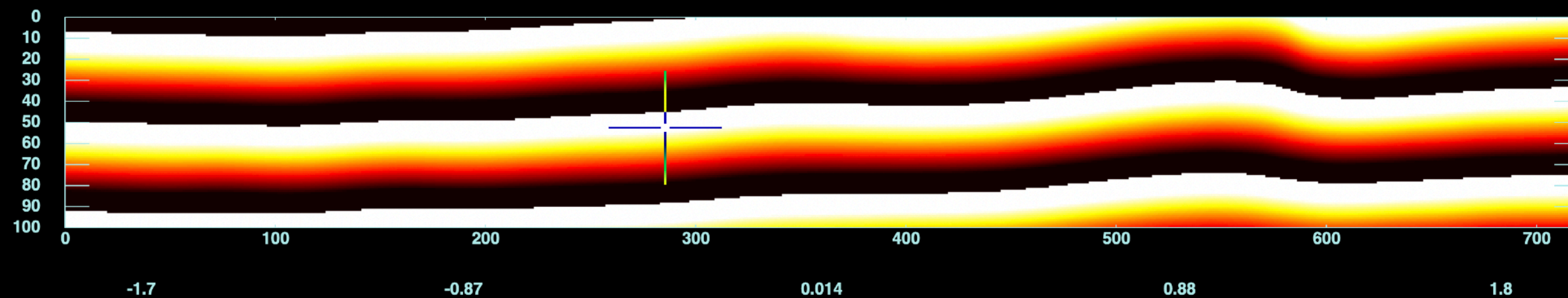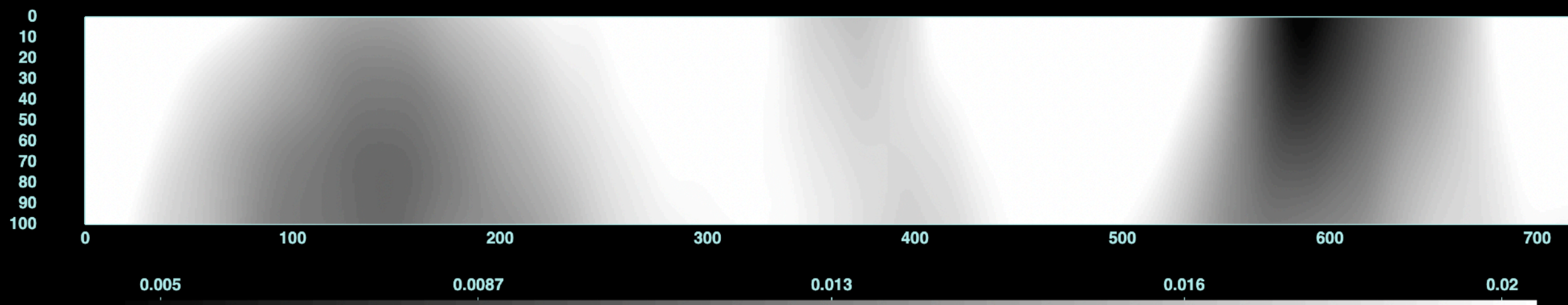
Non gaussian (bessel), frequency dependent beam, time-frequency maps for 700-800 MHz in frequency, with 1 MHz step

NVSS catalog source brightness taken at 1400 MHz, without frequency extrapolation

700 MHz

Time : 12 hours, 60 s sampling

Frequecy

1 MHz step

800 MHz
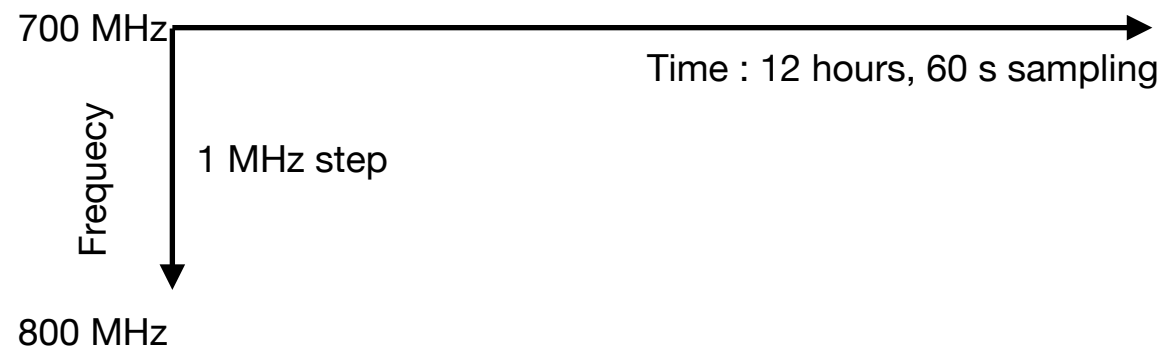
2-10 Visibility   V$_{2\text{-}10}$

Top : Visibility 2-10 , |Vij | - color scale : 20 mK

0.005   0.0087   0.013   0.016   0.02

-1.7   -0.87   0.014   0.88   1.8

Bottom : Visibility 2-10 , Phase (Vij) - color scale : +/- pi

Time average 2-10 Visibility $V_{2\text{-}10}$

*Top : Visibility 2-10 , 12 hour sum of Vij : top : real & **imaginary** parts*

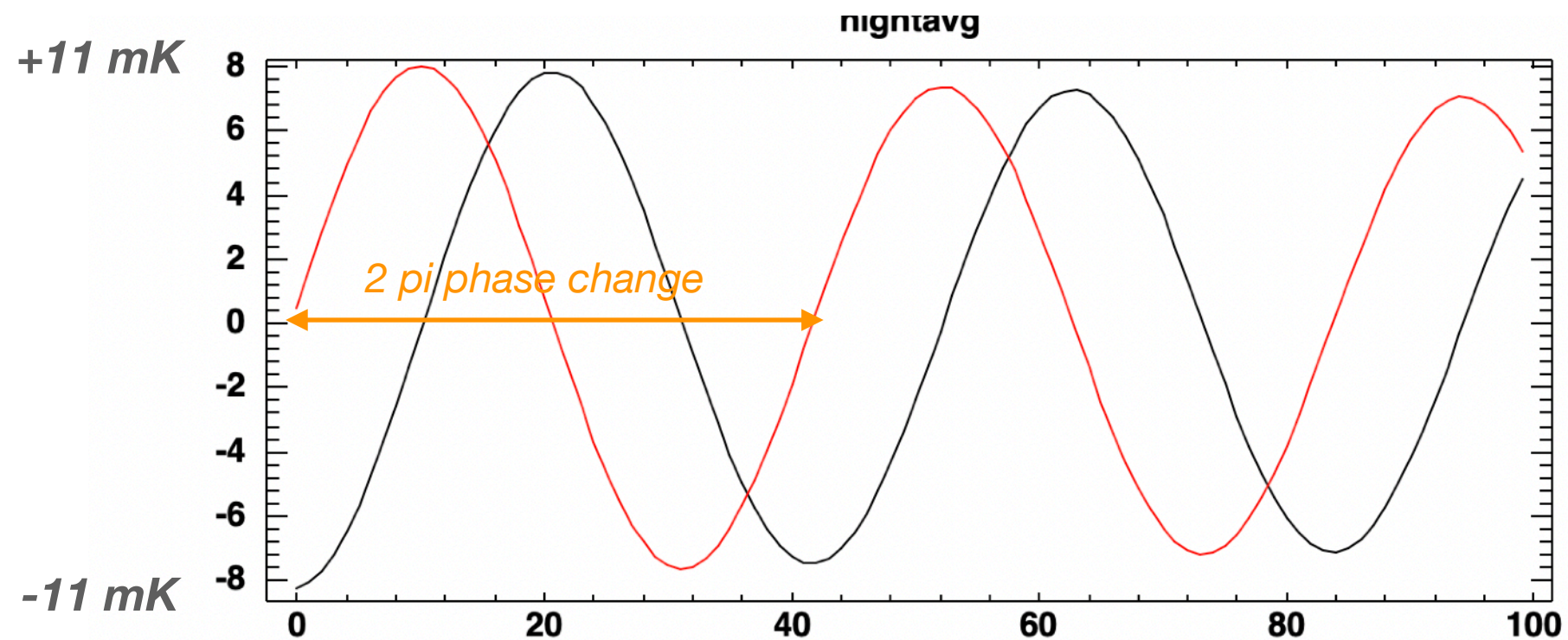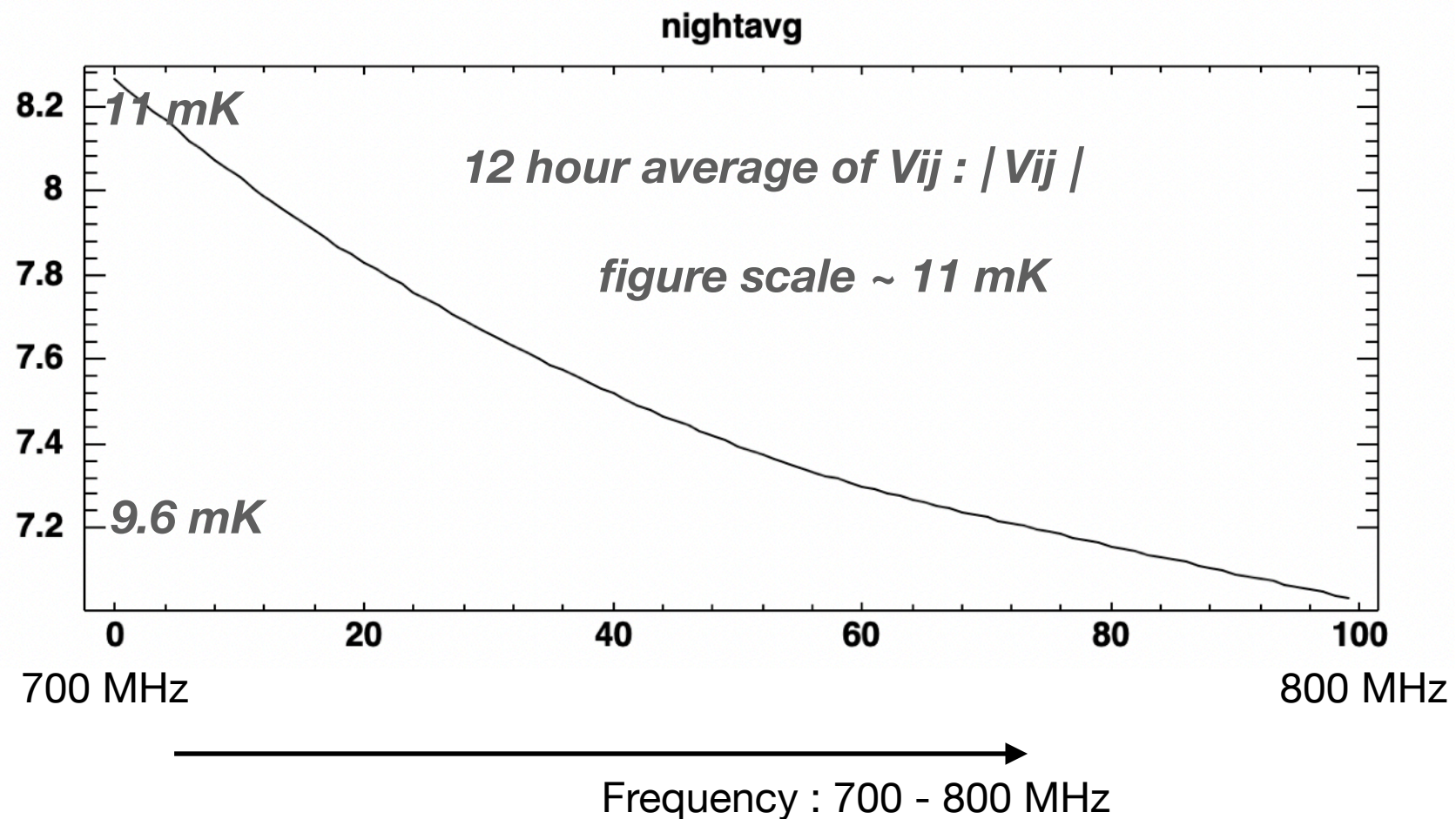**nightavg**

+11 mK

2 pi phase change

-11 mK

nightavg

figure scale ~ 11 mK
Brightness scale
would be about 3-4
times higher, if source
intensities are scaled
with frequency, from
1400 MHz (NVSS
catalog) to 750 MHz
about **45 -50 mK**

11 mK

12 hour average of Vij : | Vij |

figure scale ~ 11 mK

9.6 mK

700 MHz   800 MHz

Frequency : 700 - 800 MHz

Next figures …

Visibilities computed from all sources > 5 Jy and above δ>15 deg (so with CasA, CygA …) and sources > 1 Jy and δ>80 and >0.5 Jy and δ>85

Non gaussian (bessel), frequency dependent beam, time-frequency maps for 700-800 MHz in frequency, with 500 kHz step

NVSS catalog source brightness extrapolated from 1400 MHz to the observation frequency, assuming constant β=-2 spectral index

700 MHz

500 kHz step

Frequecy

800 MHz

Time : 12 hours, 60 s sampling

2-10 Visibility V2-10
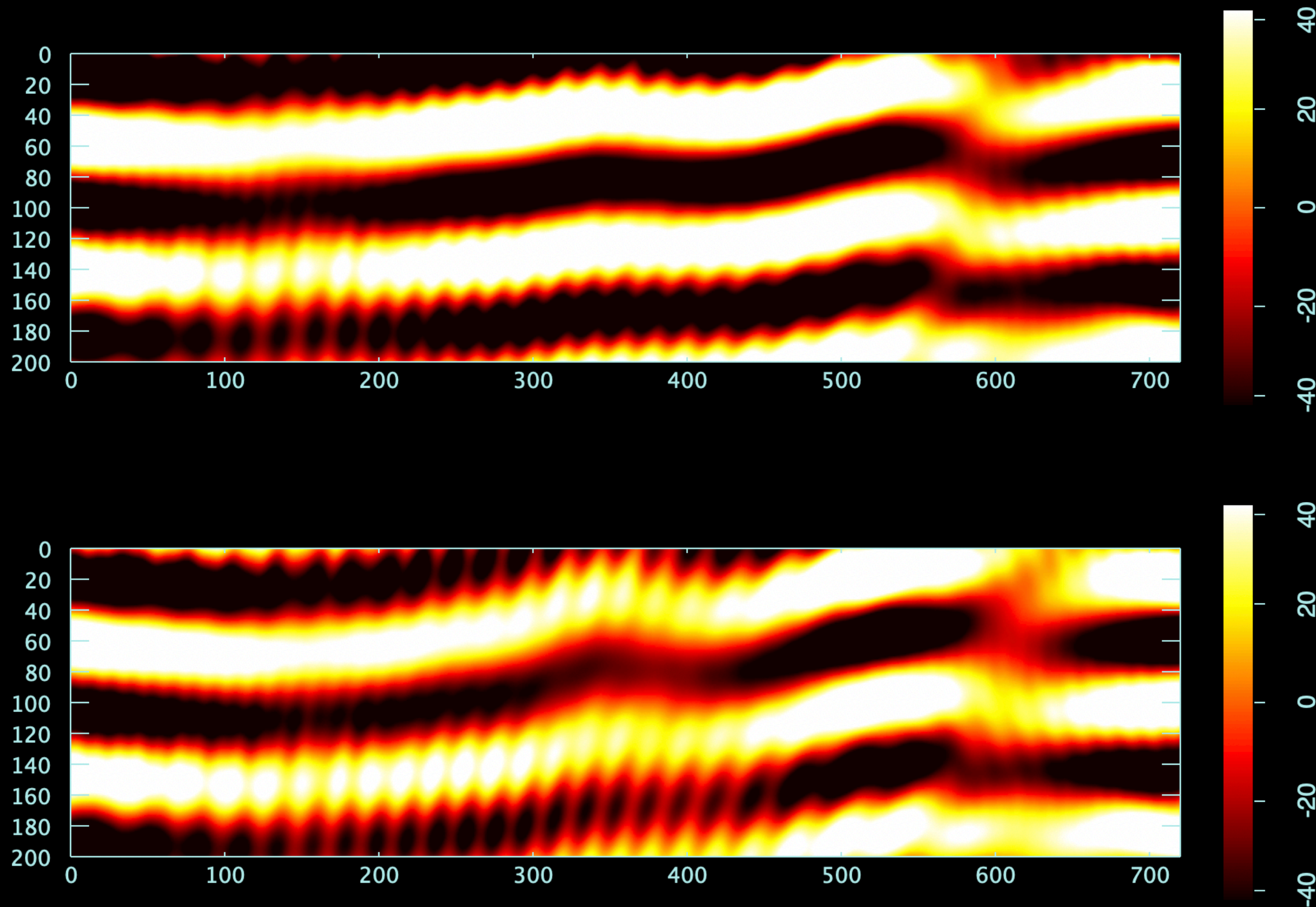
Top : Visibility 2-10 , 12 hour |Vij| - color scale scale in mK
bottom, after nightly (12 hours) mean subtraction
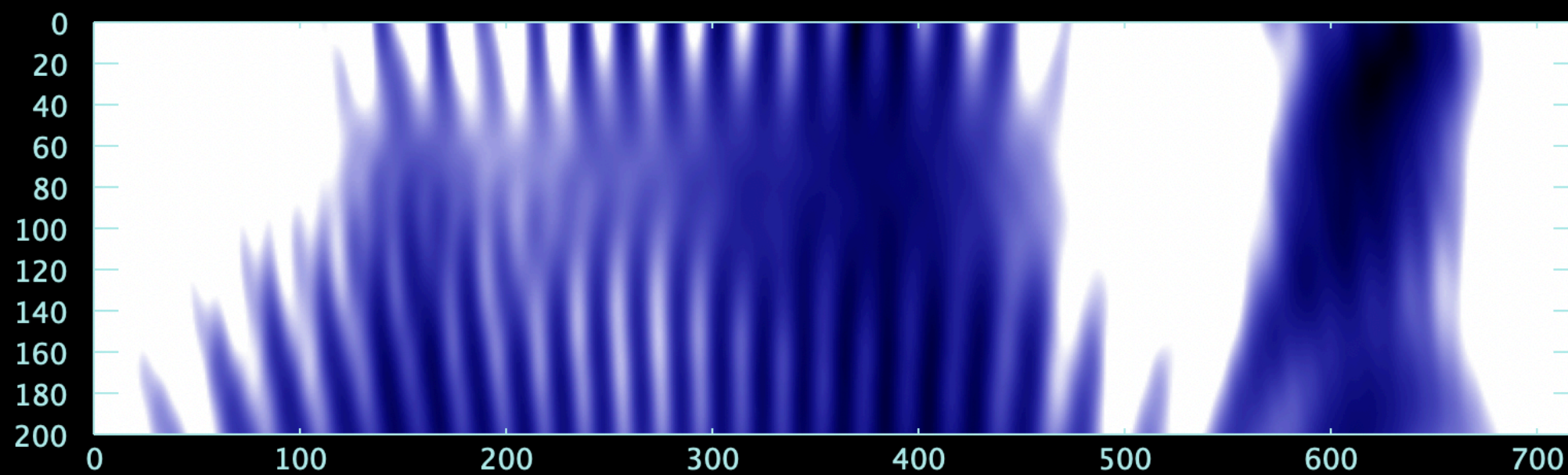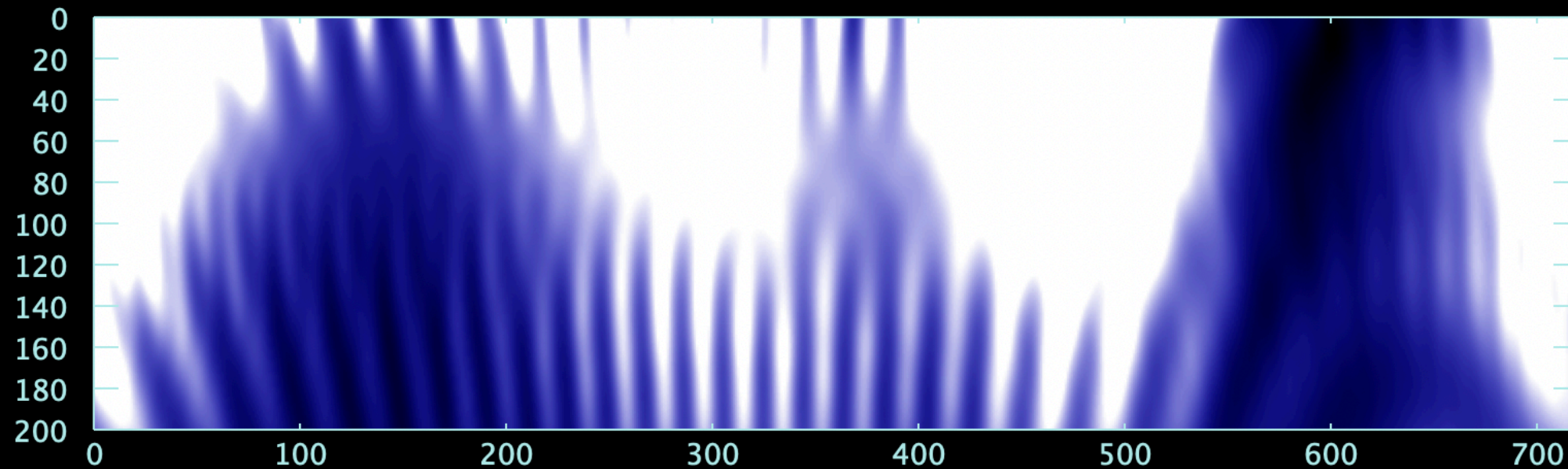
700 MHz

Frequecy

500 kHz step

800 MHz

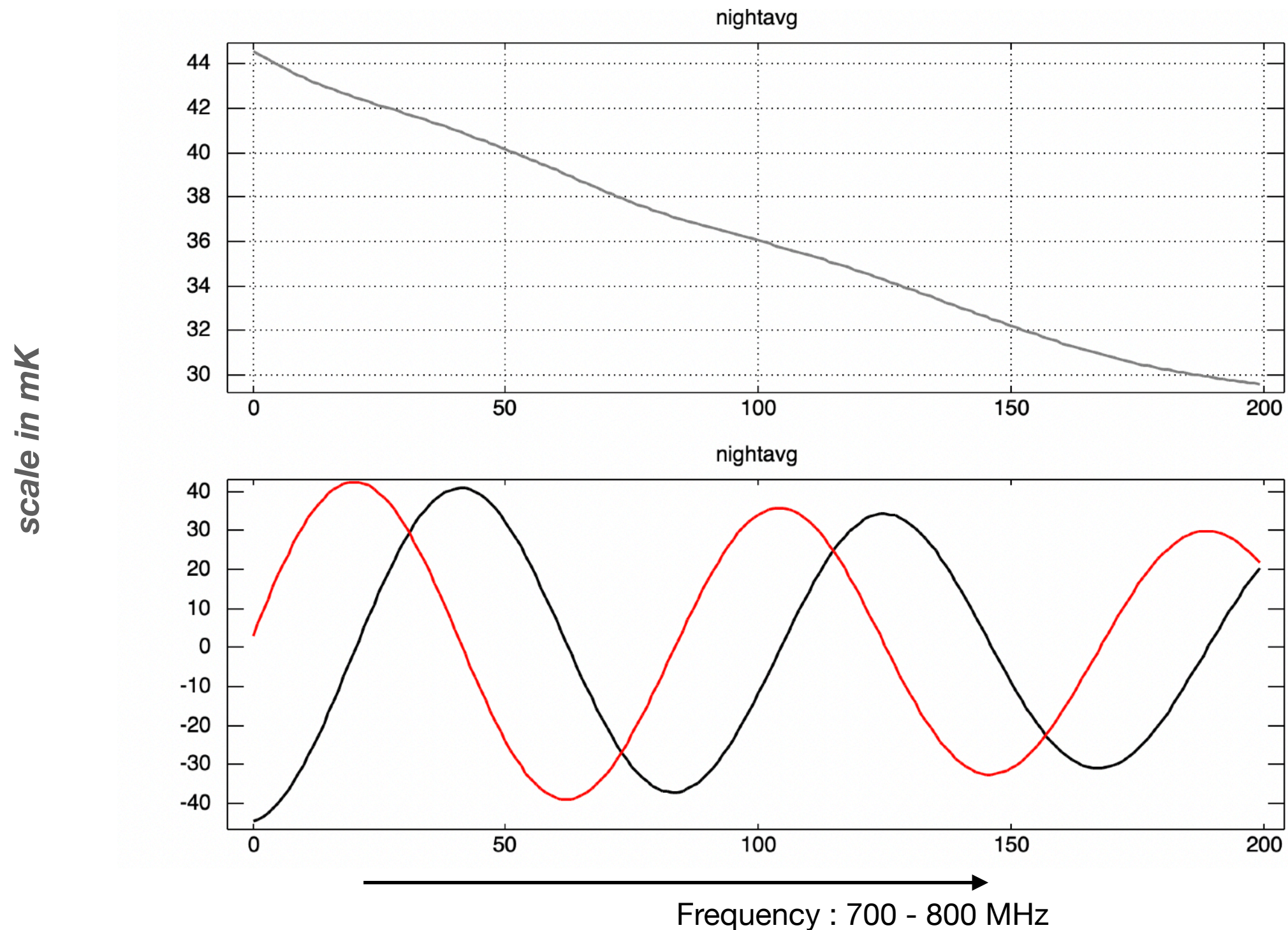Time : 12 hours, 60 s sampling

2-10 Visibility   V₂₋₁₀ - real part

Top : Visibility 2-10 , 12 hour Real(V$_{ij}$) - color scale scale in mK
bottom, after nightly (12 hours) mean subtraction

2-10 Visibility V_{2-10} - Time average over 12 hours as a function of frequency

Visibility 2-10 , 12 hour average of V_{ij},
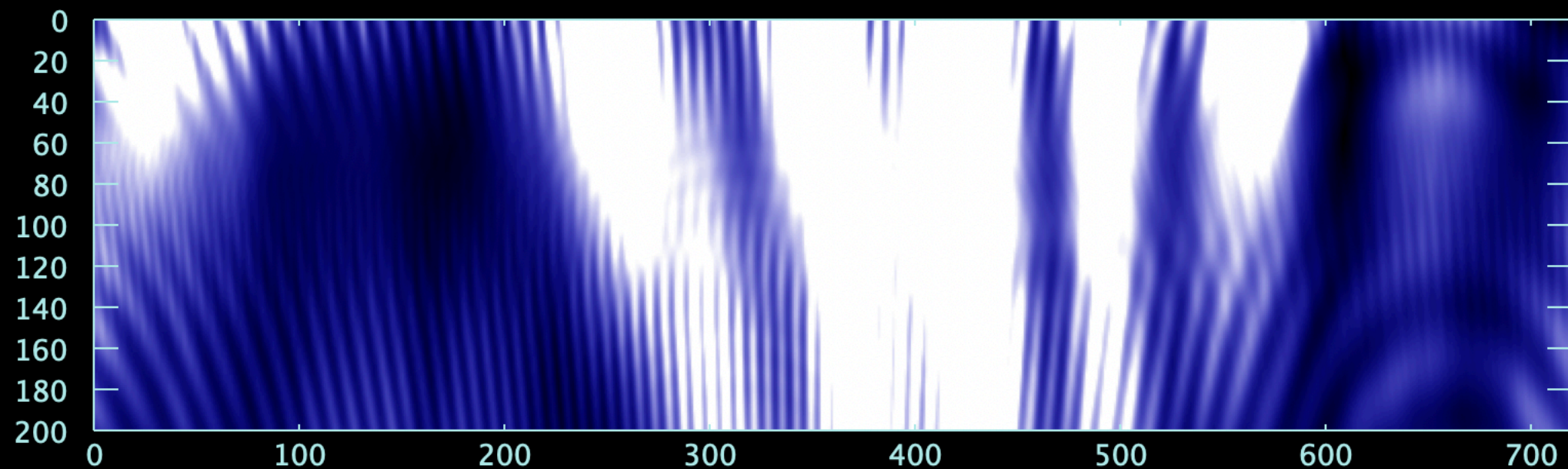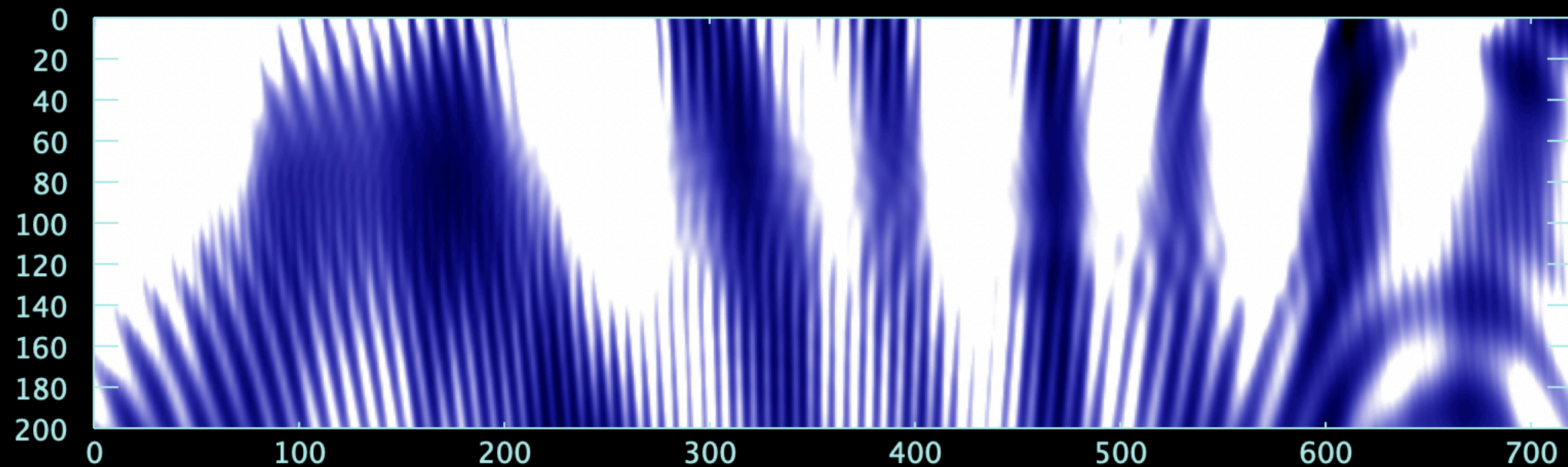*Top : plotted as $|V_{ij}|$, scale in mK   bottom : real & **imaginary** parts*

scale in mK

nightavg

nightavg

Frequency : 700 - 800 MHz

700 MHz

Frequecy

500 kHz step

800 MHz

Time : 12 hours, 60 s sampling

2-8 Visibility   V$_{2-8}$

Top : Visibility 2-8 , 12 hour $|V_{ij}|$ - color scale scale in mK
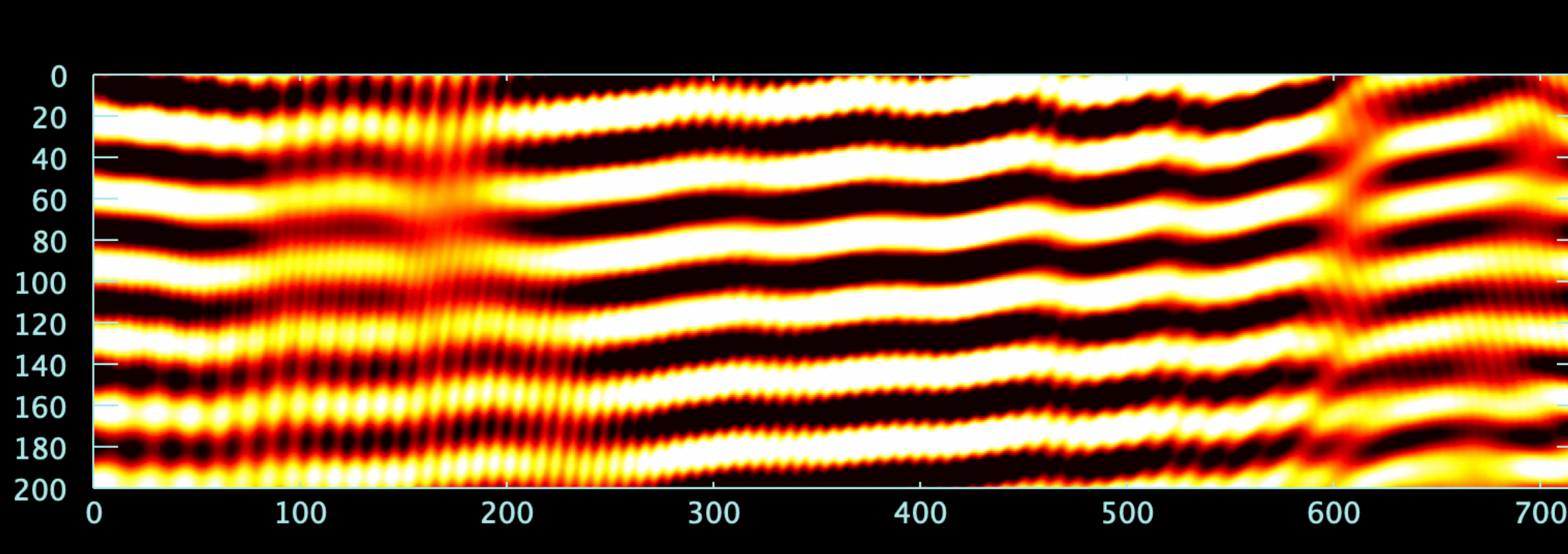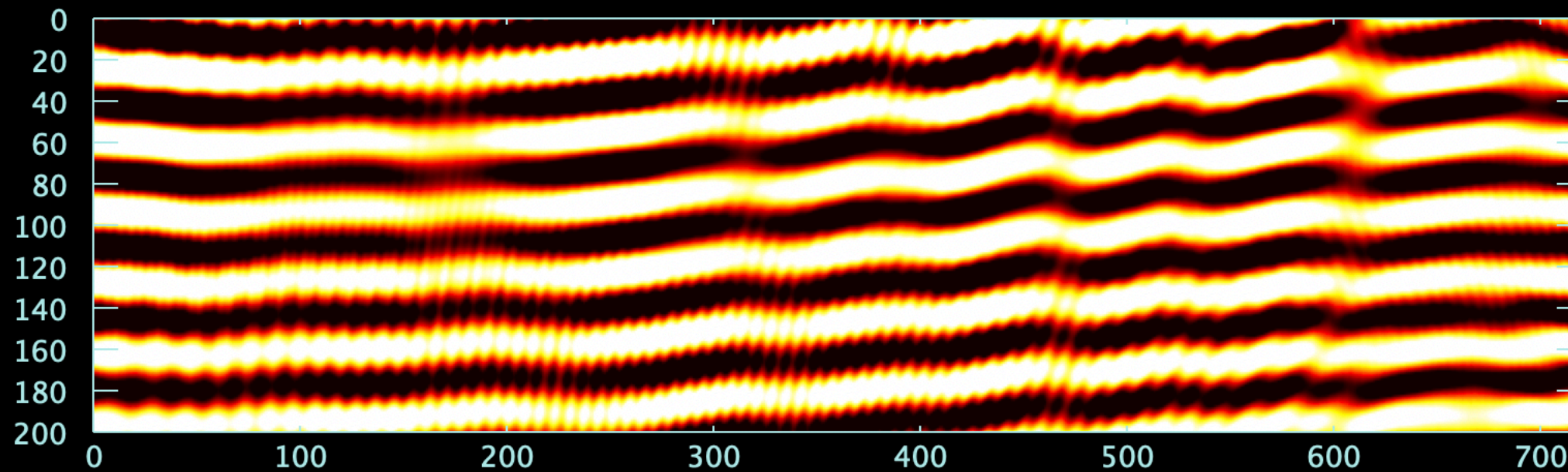*bottom, after nightly (12 hours) mean subtraction*

700 MHz

Frequecy

Time : 12 hours, 60 s sampling

500 kHz step

800 MHz

2-8 Visibility   V$_{2\text{-}8}$ - real part

Top : Visibility 2-8 , 12 hour Real(V$_{ij}$) - color scale scale in mK
bottom, after nightly (12 hours) mean subtraction

2-8 Visibility V_{2-8} - Time average over 12 hours as a function of frequency

Visibility 2-8 , 12 hour average of V_{ij},
Top : plotted as $|V_{ij}|$, scale in mK   bottom : real & *imaginary* parts

scale in mK

nightavg

nightavg

Frequency : 700 - 800 MHz